

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Improving Outage Reporting for Submarine Cables	)	GN Docket No. 15-206
and Enhanced Submarine Cable Outage Data	)	
	)	

**ORDER ON RECONSIDERATION**

**Adopted: December 20, 2019**

**Released: December 27, 2019**

By the Commission: Commissioner O’Rielly approving in part and concurring in part and issuing a statement.

**I. INTRODUCTION**

1. In the *Submarine Cable Outage Reporting Order* (Order), the Commission mandated reporting obligations for certain disruptions of submarine cable communications.<sup>1</sup> The Commission uses outage reporting primarily to aid government-wide incident response, public safety and national security efforts, and the analysis of network reliability trends. Two associations representing submarine cable providers, the North American Submarine Cable Association (NASCA) and the Submarine Cable Coalition (SCC), separately petitioned the Commission to reconsider certain aspects of the *Order*.<sup>2</sup>

2. This Order on Reconsideration reexamines and amends certain aspects of the required reporting of submarine cable infrastructure outages to better conform them to their expected uses. In doing so, we seek to preserve the benefits while minimizing the costs and administrative burdens of reporting by refocusing the submarine cable outage rules on significant disruptions to submarine cable communications and those outages that have national security implications.

**II. BACKGROUND**

3. Historically, the Commission employed a voluntary reporting regime for submarine cables through the Undersea Cable Information System (UCIS). That system provides a web portal for licensees to submit information about submarine cable operational status, including outages, on an ad hoc basis.<sup>3</sup> In contrast, communications providers covered by the Commission’s mandatory reporting rules report outages through the Network Outage Reporting System (NORS), a web-based filing system that

<sup>1</sup> *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order, 31 FCC Rcd 7947 (2016) (Submarine Cable Outage Reporting Order or Order).

<sup>2</sup> See Petition of the North American Submarine Cable Association for Reconsideration of *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order (rec. Sep. 8, 2016) (NASCA Petition); Petition of Submarine Cable Coalition for Reconsideration of *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order (rec. Aug. 11, 2016) (SCC Petition).

<sup>3</sup> See *Improving Outage Reporting for Submarine Cables and Enhancing Submarine Cable Outage Data*, GN Docket No. 15-206, Notice of Proposed Rulemaking, 30 FCC Rcd 10492, 10495, para. 5 (2015) (Submarine Cable Outage Reporting NPRM or NPRM).

uses an electronic template to promote ease of reporting and encryption technology to ensure the security of the information filed.<sup>4</sup>

4. In 2016, the Commission observed that UCIS was largely ineffective, failed to provide visibility into the operational status of the majority of submarine cables, and failed to collect data in a uniform or timely manner necessary for the Commission's purposes.<sup>5</sup> Accordingly, the Commission in the *Submarine Cable Outage Reporting Order* established mandatory reporting for submarine cables through NORS and decided to retire the Undersea Cable Information System.<sup>6</sup> As the *Order* noted, "[t]he operational status of submarine cables carries commercial, economic, social, financial, and national security implications."<sup>7</sup>

5. The *Order* defines a submarine cable "outage" as "a failure or significant degradation in the performance of a licensee's cable service, regardless of whether the traffic can be re-routed to an alternate path."<sup>8</sup> The *Order* requires submarine cable licensees to report outages that last more than 30 minutes,<sup>9</sup> or that implicate the loss of any fiber pair for four hours or more.<sup>10</sup> The *Order* requires that licensees submit such outage reports as a "Notification" within eight hours of a licensee's determination that there has been a reportable event, which would transition to a four-hour requirement three years after the rules' effective date. The *Order* also requires an "Interim Report" within 24 hours of licensees receiving a Plan of Work for any repair, and a "Final Report" within seven days of completing any repair.<sup>11</sup> The *Order* requires licensees to begin complying with the rules within six months after approval of the information collection requirements by the Office of Management and Budget (OMB).<sup>12</sup> As the Commission has not to date submitted these requirements to OMB for such approval, the rules are not currently in effect.<sup>13</sup>

6. Two entities, the North American Submarine Cable Coalition (NASCA) and the Submarine Cable Coalition (SCC) (collectively, Petitioners), filed separate timely Petitions for Reconsideration ("Petitions"), requesting that the Commission reconsider certain aspects of the *Order*.<sup>14</sup>

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<sup>4</sup> See FCC, Network Outage Reporting System (NORS), (July 5, 2018) <https://www.fcc.gov/network-outage-reporting-system-nors>.

<sup>5</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7951-52, paras. 9, 12.

<sup>6</sup> See *id.* at 7953, para. 14.

<sup>7</sup> *Id.* at 7988, para. 3.

<sup>8</sup> *Id.* at 7955, para. 18.

<sup>9</sup> *Id.* at 7558, para. 27.

<sup>10</sup> See *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7559, para. 28 (stating that "[w]e adopt a metric requiring a report for the failure or significant degradation of any fiber pair, including losses due to terminal equipment issues, on a cable segment for four hours or more, regardless of the number of fiber pairs that comprise the total capacity of the cable segment."); but see *id.* at Appendix B (Final Rules) (requiring reporting upon the loss, not degradation of a cable pair); NASCA Petition at 7 (pointing out this discrepancy between the narrative text and the rules appendix).

<sup>11</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7969, para. 55.

<sup>12</sup> *Id.* at 7974, para. 77.

<sup>13</sup> The Commission published a Federal Register notice for comment for the submarine cable information collection on November 15, 2016, pursuant to the Paperwork Reduction Act (PRA). 81 Fed. Reg. 80,055 (2016). Subsequently, the Petitions were filed with the Commission, as well as similar written opposition to the information collection. In light of this response and our pending consideration of the Petitions, we have not submitted the collection requirements to OMB, and this PRA-related matter remains pending with the Commission.

<sup>14</sup> See generally NASCA Petition; SCC Petition.

The Petitions requested that the Commission: (1) clarify an inconsistency in the definition of an outage between the narrative text of the *Order* and the Final Rules;<sup>15</sup> (2) exclude outages due to planned maintenance from the scope of the rules; (3) grant licensees more than six months for compliance following OMB approval of the information collection; (4) exclude outages that involve rerouted traffic from the scope of the rules; and (5) raise the minimum duration for a reportable outage from 30 minutes.<sup>16</sup> NASCA further requested that the Commission give licensees more than eight hours to file the Notification, which is the first filing required.<sup>17</sup> Finally, Petitioners disputed the cost-benefit analysis that the Commission conducted in adopting the *Order* and the rules.<sup>18</sup>

7. NASCA further filed a late supplement to its Petition, accompanied by a motion requesting that the Commission accept the supplement.<sup>19</sup> In the supplement, NASCA asserted that the Commission should rescind the prospective submarine cable outage reporting rules altogether because of its view that (1) it is too difficult for submarine cable licensees to determine whether an outage impacts customer communications and connectivity; (2) the passage of time has shown few reportable outages in general; (3) the outage reporting obligations are duplicative of NORS reporting and Department of Homeland Security regulatory mechanisms; and (4) the *Order's* cost-benefit analysis is deficient.<sup>20</sup>

8. The Commission sought comment on these petitions on October 31, 2016.<sup>21</sup> The public had 15 days to file oppositions to the Petitions and then ten days to reply to those oppositions.<sup>22</sup> Latam Telecommunications was the only entity that responded to the Public Notice, and it supported both Petitions.<sup>23</sup>

### III. DISCUSSION

9. Refocusing our efforts on the substantial submarine cable communications disruptions, where the benefits of our reporting regime will be most meaningful, we now refine the reporting rules adopted in the *Order*. In this Order on Reconsideration, we grant in part and deny in part the requests in the Petitions. Specifically, we narrow the scope of reportable outages to reduce the potential for reporting of mundane events and to ease reporting obligations on affected entities for outages involving planned maintenance that is announced to customers. We also clarify the definition of “outage” in our rules to reconcile an inconsistency with the intent of the *Order*, and we address the substantial savings in

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<sup>15</sup> SCC Petition at 4-7; NASCA Petition at 3-6.

<sup>16</sup> SCC Petition at 4-6 (asking the Commission to “increase the period of time that a connectivity outage need [to] exist”); NASCA Petition at 3, 6-7 (restating its original proposal of “four or more hours”).

<sup>17</sup> NASCA Petition at 2-3.

<sup>18</sup> SCC Petition at 9-15; NASCA Petition at 11-15; *see also* Supplement to Petition of the North American Submarine Cable Association for Reconsideration of *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order at 2, 8-16 (rec. September 1, 2017) (NASCA Supplement).

<sup>19</sup> *See generally* NASCA Supplement. NASCA also filed an *ex parte* in June 2018 that, although not timely and not considered in this Order on Reconsideration, raises issues that the Commission may examine in a future proceeding. *See* Letter from Kent Bressie, *et.al.*, Counsel, North American Submarine Cable Association, to Marlene H. Dortch, Secretary, FCC, GN Docket No. 15-206 (rec. Jun. 4, 2018).

<sup>20</sup> *See generally* NASCA Supplement.

<sup>21</sup> 47 CFR § 1.429(e); Petitions for Reconsideration and Clarification of Action in Rulemaking Proceeding, 81 Fed. Reg. 75368 (Oct. 31, 2016).

<sup>22</sup> *See* 47 CFR §§ 1.429(e), (f), (g).

<sup>23</sup> Letter from Arturo Pellerano Guerra, Treasurer, Latam Telecommunications, to Marlene Dortch, Secretary, FCC, GN Docket No. 15-206 (rec. Nov. 28, 2016).

compliance costs afforded by these changes. However, we decline to further extend the time before the obligations become effective, to extend the time after discovering a reportable outage that a licensee must submit a Notification, to exclude from the reporting obligation all outages that are mitigated by rerouting, or to raise the minimum duration for a reportable outage. In addition, we deny NASCA's request to rescind the submarine cable outage reporting rules altogether.

10. Before considering the merits, we first address a procedural issue. In general, the Commission will not consider a supplement filed after the 30-day period.<sup>24</sup> Although NASCA filed its Supplement outside the 30-day period normally required, the Supplement raised new facts "[b]ased on NASCA members' experience in preparing to implement the Commission's prospective rules," over a 12-month period.<sup>25</sup> Specifically, NASCA determined that, contrary to statements in its petition, "an outage definition based on customer impact is unworkable."<sup>26</sup> In light of this changed circumstance, we find that it is in the public interest to consider the NASCA Supplement and its statements about how our new submarine cable outage reporting rules would work in practice. Accordingly, the Commission will grant leave to file based on NASCA's separate pleading stating the grounds for acceptance of the supplement.<sup>27</sup>

#### A. Reporting Outages Due to Planned Maintenance

11. The *Order* requires submarine cable licensees experiencing an outage of greater than 30 minutes on a portion of a submarine cable system between submarine line terminal equipment (SLTE), or greater than four hours affecting a fiber pair, to report the outage to the Commission, including when an outage is caused by planned maintenance.<sup>28</sup> The *Order* reasoned that planned maintenance outages nevertheless affect the submarine cable ecosystem and that planned maintenance outages are covered by the part 4 reporting requirements for other types of facilities.<sup>29</sup> The *Order* stated that there is "no unique, compelling reason that would cause the Commission to depart from its past part 4 practice of requiring reports on planned maintenance events that meet the reporting triggers."<sup>30</sup>

12. In view of the record before us, we grant in part Petitioners' request that the Commission exclude planned maintenance from the outage reporting requirements.<sup>31</sup> Because submarine cable outage reporting is partly motivated by national security concerns and partly by impact to customers, and not planned service disruptions, we deem it reasonable to exclude outages that result from planned maintenance as follows. In recognition that many submarine cable operators already notify customers (including national security agencies running traffic over a provider's cable) well in advance of routine maintenance,<sup>32</sup> we grant this exemption on the condition that submarine cable operators continue to provide such advance notification to customers in these circumstances.

<sup>24</sup> 47 CFR §1.429(d) (stating that "[n]o supplement to a petition for reconsideration filed after expiration of the 30 day period will be considered, except upon leave granted pursuant to a separate pleading stating the grounds for acceptance of the supplement.").

<sup>25</sup> See Motion to Supplement Petition for Reconsideration of Improving Outage Reporting for Submarine Cables and Enhancing Submarine Cable Outage Data, GN Docket No. 15-206, Report and Order at 3 (rec. Sep. 1, 2017) (NASCA Motion to Supplement).

<sup>26</sup> See *id.*

<sup>27</sup> See 47 CFR §1.429(d); *Meredith Corp. v. FCC*, 809 F.2d 863, 869-70 (D.C. Cir. 1987).

<sup>28</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7986, Appendix B; § 4.15(a)(2).

<sup>29</sup> *Id.* at 7959, para. 29.

<sup>30</sup> *Id.*

<sup>31</sup> North American Submarine Cable Association Comments at 13-16, GN Docket No. 15-206 at 10 (rec. Dec. 2, 2015) ("NASCA Comments"); SCC Petition at 7.

<sup>32</sup> SCC Petition at 7.

13. When submarine cable operators provide advance notification to customers of planned outages, the reporting obligation is revised such that it will be limited to planned outages where (1) service is affected for an additional period of time that exceeds the announced scope of the planned maintenance, and (2) this additional period of time, standing alone, would otherwise trigger the outage reporting requirements.<sup>33</sup> In other words, we modify the rules so that reporting for planned outages is necessary only if no advance notification to a customer is provided, or, if the planned maintenance event turns into an unplanned outage in which the duration of the unplanned portion is sufficient in and of itself to trigger the outage reporting threshold.<sup>34</sup> If cable operators send different planned maintenance announcements to different classes of customers, the reporting requirement will be triggered after the event surpasses the shortest announced duration for the planned maintenance.

14. We believe that this refinement to our rules more accurately reflects the realities of submarine cable system operations,<sup>35</sup> by acknowledging that planned outages are “a routine and necessary part of submarine cable maintenance and [are] already accounted for in wholesale customer agreements.”<sup>36</sup> Our change does not burden appropriate maintenance work, which by itself does not reflect the kinds of outages that warrant Commission concern. We also believe that any impact to national security from a planned outage is likely to be mitigated by advance notification from submarine cable operators to their customers, which include national security agencies.<sup>37</sup> This refinement will also help to ensure that licensees are not burdened by compliance costs associated with reporting outages caused by planned maintenance.<sup>38</sup>

15. In the event that a licensee determines that a Notification, Interim Report, or Final Report filed for an outage was not required because the licensee later determines that the event does not meet the outage definition in 47 CFR § 4.15(a), the licensee may withdraw the filing.<sup>39</sup>

#### **B. Reporting Outages for Rerouted Traffic**

16. The *Order* defined a submarine cable “outage” as “a failure or significant degradation in the performance of a licensee’s cable service regardless of whether the traffic can be re-routed to an alternate path.”<sup>40</sup> The *Order* explained that by requiring outage reporting even in instances in which traffic is rerouted, the Commission would be better able to promote and advance national security and public safety interests.<sup>41</sup> In addition, the *Order* explained that reporting outages in which traffic is rerouted would provide the Commission with situational awareness regarding possible over-utilization of

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<sup>33</sup> The Submarine Cable Coalition states that “multiple submarine cable operators *already notify customers* (including national security agencies running traffic over a provider’s cable) well in advance of routine maintenance.” SCC Petition at 7 (emphasis added).

<sup>34</sup> For example, the Submarine Cable Coalition describes a situation in which a shunt fault may develop into a “major outage actually disrupting communications for a meaningful amount of time.” See SCC Petition at 6.

<sup>35</sup> NASCA Petition at 3, 6.

<sup>36</sup> SCC Petition at 7.

<sup>37</sup> See *supra* para.12. As Petitioners stated, submarine cable providers give advance notification to their customers of planned maintenance, and we note that unlike other communications providers that have a mix of corporate and individual customers, submarine cable providers have exclusively corporate customers that presumably monitor and act upon such advance notifications.

<sup>38</sup> See, e.g., SCC Petition at 7.

<sup>39</sup> See Appendix B.

<sup>40</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7955, para. 18.

<sup>41</sup> *Id.* at 7955, para. 19.

redundant paths, and would offer insight into the operability of submarine cables, enabling the Commission to better safeguard their reliability.<sup>42</sup>

17. In their petitions, Submarine Cable Coalition and NASCA both presented arguments to exclude outages from reporting where traffic is rerouted based on the fact that there would be no customer impact.<sup>43</sup> Although NASCA later withdrew its original customer impact-based outage proposal, it makes an important observation about customer impact in general by explaining that for the definition to work, cable operators would need access to real-time information regarding end-to-end communications. Further, NASCA explains that such access is unavailable even to networks and submarine cables owned by the same provider. NASCA argues that this leaves submarine cable operators without the ability to determine that an outage would produce no customer impact. Similarly, Submarine Cable Coalition argues that such reporting of outages even where rerouting occurs “expend[s] funds and resources reporting an ‘outage’ that has no effect on traffic viability,” and that providers have already invested in making sure that outages do not have a “meaningful effect on its customers or the nation’s security.”<sup>44</sup>

18. As described above, we exempt from reporting those outages that are for planned maintenance purposes where the operator notified customers in advance of the outage. In this respect, we also recognize that these planned outages may involve planned remediation efforts such as rerouting and, because customers are notified, have less of an impact on customers. As such, we clarify that where a planned outage includes rerouting the outage need not be reported. For outages outside of planned maintenance, we will maintain the reporting requirement. In the case of unplanned outages, customers are not notified ahead of time that there will be an outage or the approximate duration of the outage in order to make the necessary preparations for their networks. In addition, as NASCA explained, submarine cable operators, even those on networks owned by the same provider, do not have the real time information about communications delivery to end-users to be confident that rerouting has been successful and that there has been no customer impact.<sup>45</sup> Furthermore, unplanned outages also constitute a heightened national security concern, especially when the cause or the origin of the outage is unclear. Therefore, we remain concerned about unplanned outages even when traffic is rerouted and will require reporting as described below.

19. Accordingly, we deny Submarine Cable Coalition’s request to limit outage reporting for events involving rerouted traffic.<sup>46</sup> We exempt reporting as described above for planned maintenance events,<sup>47</sup> including those events involving rerouted traffic, but deny the request to alter the outage reporting requirement and therefore, maintain the reporting requirement for unplanned outages even when traffic is rerouted. First, we concur with NASCA’s assertion that parsing from submarine cable outage reporting those outages with consumer impact would be too difficult and burdensome for providers due to the lack of information submarine cable operators have about customer communication delivery to end users, including for those on the networks owned by the same provider. Second, although Submarine Cable Coalition argues that providers have already invested in making sure that outages do not have a meaningful effect on the nation’s security, we retain a modified reporting obligation in light of heightened

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<sup>42</sup> *Id.*

<sup>43</sup> SCC Petition at 8; NASCA Petition at 5-6; NASCA Supplement at 5-7.

<sup>44</sup> SCC Petition at 8.

<sup>45</sup> NASCA Supplement at 5.

<sup>46</sup> Because the request of the Submarine Cable Coalition to exclude rerouted traffic from reporting remains pending, we consider it here.

<sup>47</sup> See *supra* Section III.A. (discussing planned maintenance events).



concerns regarding the impact certain unplanned outages would have for national security interests,<sup>48</sup> specifically those outages outside the planned maintenance exception discussed above.<sup>49</sup> As explained in the *Order*, in “promoting and advancing the national security and public safety interests served by U.S.-based landings and connections as a whole,” the Commission aims to assess vulnerabilities of the “total undersea cable environment serving the United States.”<sup>50</sup> In this respect, we find that the Commission and its national security partners, not the industry, are in the best position to determine when national security is implicated. Accordingly, except for outages due to planned maintenance as discussed above,<sup>51</sup> submarine cable providers must report outages to the Commission when the outage is unplanned regardless of whether traffic is rerouted, meaning customers have not been notified in advance of the outage and of its expected duration as described in the previous section.<sup>52</sup>

20. Therefore, the outage reporting requirement and the planned maintenance exemption now focus the reporting rule to capture outages with the highest probability of customer impact, thus retaining significant reporting benefits<sup>53</sup> while reducing the burden on providers. In particular, we anticipate that modifying our original outage reporting requirement, by exempting planned maintenance events announced to the customer, will considerably decrease the number of outages that will need to be reported. Accordingly, when considering the costs and benefits associated with continued reporting as modified today, we find that the national security and other benefits associated with this modified requirement, and the lighter burden associated with the modified reporting obligation, justify requiring that outages be reported even when all traffic is rerouted.

21. In reaching this decision, we acknowledge Petitioners’ arguments that when submarine cable traffic is rerouted during outages,<sup>54</sup> that outage reporting is of less value than in other situations because of the limited effect on end users.<sup>55</sup> However, while this may be true for some rerouted traffic events, such as with planned maintenance outages previously announced to customers, in other instances, such as with unplanned outages, customers are not notified in advance and at least some submarine cable

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<sup>48</sup> The Commission has received classified national-security information from an agency of the United States government that supports these findings. See 47 U.S.C. § 154(j) (“The Commission is authorized to withhold publication of records or proceedings containing secret information affecting the national defense.”); *Use of Classified Information*, FCC 78-755, 44 RR2d 607, para. 10 (FCC 1978) (noting that classified information affecting the ultimate decision would be retained “to ensure meaningful judicial review should any disclosure be deemed necessary in a later review of these proceedings”). See also *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7955, paras. 18-19.

<sup>49</sup> See *supra* Section III.A. (discussing planned maintenance events).

<sup>50</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7955, para.19.

<sup>51</sup> See *supra* Section III.A. (discussing planned maintenance events).

<sup>52</sup> See *supra* Section III.A. (discussing planned maintenance events).

<sup>53</sup> Submarine cables are the “primary conduit for connectivity between the contiguous United States and Alaska, Hawaii, American Samoa, Guam, the Northern Marianas, Puerto Rico, and the U.S. Virgin Islands,” and carry a critical amount of U.S. international communications with potential for “significant impacts on national security and the economy.” As the *Order* noted, the public welfare costs for an outage here could be extremely high, with lives and tremendous financial interests at stake; though the Commission licenses and conditions the use of these critical lines of communication. *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7980, para. 91.

<sup>54</sup> See Letter from Ulises R. Pin, *et al.*, Counsel, Submarine Cable Coalition, to Marlene Dortch, Secretary, FCC, GN Docket No. 15-206 at 2 (rec. Mar. 14, 2018) (SCC *Ex Parte*); Letter from Kent Bressie, *et al.*, Counsel, North American Submarine Cable Coalition, to Marlene Dortch, Secretary, FCC, GN Docket No. 15-206 at 2 (filed Feb. 27, 2018) (NASCA *Ex Parte*).

<sup>55</sup> SCC Petition at 8.

operators are unable to determine that there was a limited effect on end users. Moreover, unplanned outages, even where traffic is rerouted, may raise national security concerns.

**C. Minimum Duration of Reportable Outages**

22. The *Order* requires reporting of an outage that meets the requirements and lasts 30 minutes or more.<sup>56</sup> The *Order* explained that 30 minutes, not three hours, is an appropriate timeframe because “damage or repair to facilities between the SLTE likely indicates a long-term problem that will not be cleared quickly, so there is no benefit to further delaying reporting.”<sup>57</sup>

23. In light of our decision to grant in part the Petitioners’ request for relief with respect to outages for planned maintenance, we do not find the Petitioners’ arguments here persuasive. We reject Petitioners’ suggestion for a minimum threshold of “four or more hours” or even three hours.<sup>58</sup> Outages of less than three hours may still have significant impact on communications networks and remain of interest to both the Commission and other government agencies with national security responsibilities. Reporting of these outages provides value to our incident response and national security considerations. The threshold sought by Petitioners could impair the government’s ability to gather facts and discern patterns with respect to multiple short-term outages across submarine cable licensees that may be related to a single source or issue—e.g., a malicious actor leveling attacks in bursts over time; or a technical defect or vulnerability that begins to manifest in short, seemingly minor submarine cable outages.

24. We also believe that this decision, coupled with our assessment in Section III.F., *infra*, to provide flexibility in the definition of an outage affecting a fiber pair as codified in Section 4.15(a)(2)(ii) serves to alleviate any concerns that this requirement is “too stringent and will capture mundane events.”<sup>59</sup> Therefore, we retain the 30-minute outage duration threshold. Even short outages may have a significant cumulative effect if they occur simultaneously due to an emergency or other incident.<sup>60</sup> We therefore deny Petitioners’ request.

**D. Notification Timeframe**

25. The *Order* provided that licensees submit notifications to the Commission within eight hours after discovering a reportable outage, phasing down to four hours after a three-year period.<sup>61</sup> The Commission reasoned that the phased-in structure would “give licensees ample time to hone their reporting structure while still achieving . . . prompt situational awareness.”<sup>62</sup> The *Order* noted that reporting entities “need not provide substantive detail on the root cause, location, or duration of the outage if unavailable at that time,” and explained the need for timely notification.<sup>63</sup> As appropriate based on such notifications, the Commission may then take actions such as providing continuity assistance,

<sup>56</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7959, 7986, para. 27, Appendix B at para. 5.

<sup>57</sup> *Id.* at 7959, para. 27.

<sup>58</sup> NASCA Petition at 6, citing to NASCA Comments at 10; SCC Comments at 17.

<sup>59</sup> NASCA Petition at 6, citing to NASCA Comments at 10.

<sup>60</sup> The Commission has received classified national-security information from an agency of the United States government that supports these findings. See 47 U.S.C. § 154(j) (“The Commission is authorized to withhold publication of records or proceedings containing secret information affecting the national defense.”); *Use of Classified Information*, FCC 78-755, 44 RR2d 607, para. 10 (FCC 1978) (noting that classified information affecting the ultimate decision would be retained “to ensure meaningful judicial review should any disclosure be deemed necessary in a later review of these proceedings”).

<sup>61</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7966-67, paras. 47-50.

<sup>62</sup> *Id.* at 7966-67, para. 50.

<sup>63</sup> *Id.* at 7966, para. 49.



coordinating with other government agencies, and helping manage the public information aspect of major outages.

26. We deny Petitioners' request to extend the Notification reporting timeframe and retain the phased-in requirement of eight hours followed by four hours.<sup>64</sup> We believe that the adopted notification timeframe strikes a reasonable balance between the need of licensees to identify and promptly respond to outages and the Commission's need for timely information.

27. Notifications must be reasonably timely in order for the Commission to help protect national security, including by sharing information as appropriate with federal partners, aiding restoration efforts as appropriate, and analyzing data where possible to anticipate potential future outages.<sup>65</sup> While we believe that proposals such as Notifications in 48 hours are insufficient to enable the Commission actions described above, we note that Notifications are now limited due to the other changes adopted in this Order on Reconsideration, and continue to call for an abbreviated set of information—not the more extensive data associated with the later reporting obligations—that the Commission needs on a timely basis.<sup>66</sup>

28. Furthermore, for other types of outages currently reported in NORS, reporting often serves as the trigger for Commission personnel to engage with communications providers and other parties.<sup>67</sup> We anticipate that Commission personnel would similarly engage as appropriate with submarine cable operators based on the new reporting requirements. This engagement is often facilitated, especially when outages occur and are reported in NORS outside of normal business hours, by the FCC Operations Center, which operates 24 hours a day, seven days a week, including holidays. The phased-in timeframe will enable reasonably prompt Notification to the Commission. This, in turn, will improve the Commission's situational awareness and increase the ability of both the Commission and other government agencies to respond as necessary to outages, including those "that could affect homeland security, public health or safety, and the economic well-being of our Nation."<sup>68</sup> We believe that this decision will enable the Commission to help facilitate communication and coordination between the submarine cable operator and both federal and local government officials in a reasonably timely manner, so that the Commission does not need to rely on happenstance to initiate its response. Information regarding such outages could also help the Commission inform the public as appropriate about major outages based on more accurate and timely information.

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<sup>64</sup> *Id.* at 7966, para. 50.

<sup>65</sup> The Commission has received classified national-security information from an agency of the United States government that supports these findings. *See* 47 U.S.C. § 154(j) ("The Commission is authorized to withhold publication of records or proceedings containing secret information affecting the national defense."); *Use of Classified Information*, FCC 78-755, 44 RR2d 607, para. 10 (FCC 1978) (noting that classified information affecting the ultimate decision would be retained "to ensure meaningful judicial review should any disclosure be deemed necessary in a later review of these proceedings").

<sup>66</sup> A Notification shall be submitted in good faith and provide: name of the reporting entity; the name of the cable; list all licensees for that cable; the date and time of onset of the outage, if known; a brief description of the event, including root cause, if known; nearest cable landing station; approximate location of the event, if known (expressed in either nautical miles and the direction from the nearest cable landing station or in latitude and longitude); best estimate of the duration of the outage, including approximate arrival time and date of the repair ship, if applicable; a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity. 47 CFR § 4.15(b)(2)(ii).

<sup>67</sup> *See* 47 CFR § 4.9.

<sup>68</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7952, para. 12 (internal footnotes omitted).

### E. Compliance Timeframe

29. In the *Order*, the Commission determined that the reporting rules would become effective six months following approval of the information collection by OMB. The *Order* observed that six months represented “a balance between industry’s needs to adequately prepare for these reporting requirements and the Commission’s need to obtain timely situational awareness of the operational status of the nation’s submarine cable infrastructure.”<sup>69</sup> Under the current voluntary reporting regime, only some submarine cable licensees report outages in UCIS, and even those licensees which report do so with varying types of information and in varying formats, so an implementation period of some duration was warranted to enable all licensees to prepare their systems to comply with the new rules.<sup>70</sup>

30. We disagree that additional time after OMB approval from six months to 12-18 months (NASCA) or 12-15 months (SCC)<sup>71</sup> is warranted, and instead conclude that these rules, as modified today, should still become effective 6 months following approval by OMB. We find this shorter phase in period is appropriate because, as the *Order* noted, many providers are already providing some level of outage notification.<sup>72</sup> Moreover, because of the significant changes to the outage reporting regime in this Order on Reconsideration, the number of reportable outages will be significantly smaller now. Finally, the final rules, as modified in this Order on Reconsideration, have not yet taken effect and still require OMB approval, thus affected parties have still more time to prepare, which may alleviate the likelihood that some licensees will need to file extension or waiver requests due to an inability to comply.<sup>73</sup>

### F. Definition of an “Outage”

31. In the *Order*, the Commission defined an outage in pertinent part as “a failure or significant degradation in the performance of a licensee’s cable service.”<sup>74</sup> The term “significant” degradation, as opposed to all instances of degraded service, was designed to focus on major disruptions—including ones for which “some traffic might be getting through during a period of massive disruption.”<sup>75</sup> The *Order* further stated that the “failure or significant degradation of any fiber pair” may also constitute a reportable outage.<sup>76</sup>

32. We grant the request to amend Section 4.15(a)(2)(ii), and agree with NASCA that there is a discrepancy between the narrative text of the *Order* and the Final Rules in the *Order*’s Appendix B.<sup>77</sup> The text of the *Order* defines an outage affecting a fiber pair as a “failure or significant degradation.”<sup>78</sup> The Final Rules, however, state that an outage affecting a fiber pair is a “loss of a fiber pair,” and omits the “failure or significant degradation” language.<sup>79</sup> The text of the *Order* consistently uses the phrase “failure or significant degradation” to describe an outage, including in the discussion of an outage

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<sup>69</sup> *Id.* at 7974-75, para. 77.

<sup>70</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7974-75, para. 77.

<sup>71</sup> NASCA Petition at 10.

<sup>72</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7974-75, para. 77 (citing NASCA Comments at 6).

<sup>73</sup> SCC Petition at 17; NASCA Petition at 11.

<sup>74</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7955, para. 19.

<sup>75</sup> *Id.* at 7955-56, para. 20, internal citations omitted.

<sup>76</sup> *Id.* at 7959, para. 28.

<sup>77</sup> See NASCA Petition at 7.

<sup>78</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7959, para. 28.

<sup>79</sup> *Id.* at 7986, Appendix B, § 4.15(a)(2); NASCA Petition at 7.

affecting fiber pairs for four hours or more.<sup>80</sup> The *Order*'s Appendix B contains the same definition of an "outage" at Section 4.15(a)(1), and then accurately defines an "outage" affecting portions of the submarine cable system between submarine line terminal equipment (SLTE) at Section 4.15(a)(2)(i).<sup>81</sup> NASCA correctly notes that in Section 4.15(a)(2)(ii), however, the Final Rules refer to an outage affecting a fiber pair simply as a "loss," rather than as the narrative text stated, as a "failure or significant degradation."<sup>82</sup> We therefore amend Section 4.15(a)(2)(ii) to clarify that an outage that affects a fiber pair occurs not when there is a "loss" but rather when there is an "outage," which is in turn correctly defined in Section 4.15(a)(1) as a "failure or significant degradation."

33. This modification makes the section consistent with the narrative text of the *Order*, which stated that an outage affecting a fiber pair is to act as a "reporting backstop" for the connectivity reporting requirement, which accounts for performance failures and loss of service.<sup>83</sup> Also, the modification is consistent with the definition of an "outage" contained in Section 4.15(a)(1) of the Final Rules of the *Order*.<sup>84</sup> Further, this modification aligns the outage definition here with the outage definition in another outage reporting rule, Section 4.5(a),<sup>85</sup> and follows the "long established outage reporting requirement that an outage includes events where even 'some traffic might be getting through during a period of massive disruption.'"<sup>86</sup>

#### IV. SUMMARY OF IMPACT ON COSTS

34. The Petitioners are of course correct that new reporting rules will require licensees to incur compliance costs. However, those costs are limited by various factors. First, the changes adopted in this Order on Reconsideration reduce overall reporting requirements. Although we lack specific data on the exact magnitude of the reduction in reporting, as a general matter we expect that these changes will generate fewer reports than the number of reports originally contemplated by the *Order*, which will lower reporting costs without significantly reducing the benefits.<sup>87</sup> In addition, we are requiring licensees to

<sup>80</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7959, para. 28.

<sup>81</sup> *Id.* at 7986, Appendix B.

<sup>82</sup> *Id.* at 7986, Appendix B; NASCA Petition at 7.

<sup>83</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7959, 7986, paras. 26-28 (explaining that in adopting the final reporting metrics, the change was made because "[u]nder the originally proposed metric, events causing performance failures would not be reportable until all connectivity was lost . . . [and that the Commission] modif[ied] both proposed metrics, addressing the connectivity and capacity metrics to account for performance failures.").

<sup>84</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7986, Appendix B.

<sup>85</sup> Section 4.5(a) defines an outage as "a significant degradation in the ability of an end user to establish and maintain a channel of communications as a result of failure or degradation in the performance of a communication provider's network." 47 CFR § 4.5(a).

<sup>86</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7956, para. 20, note 66 (citing 47 C.F.R. § 4.5(a); Amendment of Part 63 of the Commission's Rules to Provide for Notification by Common Carriers of Service Disruptions, CC Docket No. 91-273, Report and Order, 7 FCC Rcd 2010, 2012, para. 11 (1992); New Part 4 of the Commission's Rules Concerning Disruptions to Communications, ET Docket No. 04-35, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 16830, 16860, 16862, 16920, para. 55, nn.168, 182, Appendix B (2004)).

<sup>87</sup> The *Order* based its cost benefit analysis on an assumption that each of the cable systems registered with the Commission (which, as of 2016, was 61 cables) would suffer one reportable event each year. *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7979, para. 87, n.276. Based on the modifications to the reporting requirements set forth in this Order on Reconsideration, however, we find the number of reportable outages will be significantly less than one event per cable per year. Currently, there are 74 cable systems licensed by the Commission. See FCC, Submarine Cable Landing Licenses, <https://www.fcc.gov/research->

(continued....)

report only information that they routinely either have or must obtain to restore service. Indeed, many of the reporting requirements, as modified herein, only require reporting of information “if known.” We therefore anticipate that the reporting requirements, as modified herein, are unlikely to result in substantial additional information gathering costs to licensees. We also consider that some licensees may incur one-time costs associated with the modified outage reporting obligations, but we anticipate that any such costs will be mitigated in part by the fact that, due to consortium agreements associated with submarine cables,<sup>88</sup> not all licensees will incur the full scope of review costs.<sup>89</sup>

35. The changes adopted today reduce less useful reporting elements, such as the change to limit the reporting obligation for outages involving planned maintenance announced to customers, but keep essential components, and therefore the benefits are not adversely affected to a significant degree. Although the benefits under the modified submarine cable outage reporting regime are significant, especially for national security and public safety purposes, it is not possible to estimate with precision the dollar value of these benefits.<sup>90</sup> For example, in addition to outages caused by weather or inadvertent damage, we must also consider the potential for malicious damage by an adversary that could impair a significant amount of submarine cable traffic and severely degrade both government and non-government communications.<sup>91</sup>

36. In these cases, mandatory and consistent outage reporting will deliver greater benefits than the previous voluntary reporting regime, because based on more than a decade of experience in outage reporting, if we were to rely on obtaining information from voluntary outage reporting and press

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[reports/guides/submarine-cable-landing-licenses](#) (Dec. 2019). Also operational are three cables with pending renewal applications that are operating under Special Temporary Authority (STA): Taino-Carib Cable System, Americas I Cable System, and Columbus II Cable System. *Non-Streamlined Submarine Cable Landing License Applications, Accepted for Filing*, Public Notice, Report No. SCL-00225NS (IB, Sept. 4, 2018); *Streamlined Submarine Cable Landing License Applications, Accepted for Filing, Public Notice*, Report No. SCL-00241S (IB, May 21, 2019); *Streamlined Submarine Cable Landing License Applications, Accepted for Filing, Public Notice*, Report No. SCL-00242S (IB, May 22, 2019). There are nine applications for new submarine cable systems currently pending before the International Bureau – none of which is operational. See the International Bureau Filing System (IBFS), <http://licensing.fcc.gov/myibfs/> (last visited Dec. 23, 2019).

<sup>88</sup> See *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7962-63, paras. 37-39 (discussing consortiums and Responsible Licensees).

<sup>89</sup> As many cables are jointly-owned by consortia of different licensees, these licensees may choose to register a Responsible Licensee with the Commission for reporting purposes with respect to the jointly-owned cable. Accordingly, not all licensees will incur the full scope of one-time review costs. See *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7962-63, paras. 37-39.

<sup>90</sup> The analysis of submarine cable outage reporting benefits must consider the integral and indispensable role that submarine cables serve in the national and international communications infrastructure, including their impact on national security and public safety interests. Submarine cable outages do not occur with the same frequency as terrestrial outages, but when they do occur they may have a much higher impact due to the volume and the nature of communications carried over such cables. Indeed, the World Bank recommends that every country develop strategies for managing low-probability, high-impact events, and that such strategies include early warnings. Kenzo Hiroki, International Centre for Water Hazard and Risk Management, Public Works Research Institute, “Strategies for Managing Low-probability, High-impact Events,” World Bank (2012), <https://openknowledge.worldbank.org/handle/10986/16163>.

<sup>91</sup> See Pete Barker, “Undersea Cables and the Challenges Protecting Seabed Lines of Communication,” Center for International Maritime Security (Mar. 15, 2018), <http://cimsec.org/undersea-cables-challenges-protecting-seabed-lines-communication/35889>; Garrett Hinck, “Evaluating the Russian Threat to Undersea Cables,” LAWFARE, Cybersecurity and Deterrence (Mar. 5, 2018) <https://www.lawfareblog.com/evaluating-russian-threat-undersea-cables>; Levi Maxey, “Kremlin’s New Subs Set Sights on Internet’s Undersea Backbone,” The Cipher Brief (Jan. 7, 2018) <https://www.thecipherbrief.com/kremlins-new-subs-set-sights-internets-undersea-backbone>.

reports, it might take days or weeks for the Commission to identify the occurrence of an outage, not to mention its cause and or scope.<sup>92</sup> The voluntary reporting regime does not collect uniform and timely data, whereas consistent mandatory outage reporting will collect such data and provide the Commission with a visibility into the reliability of the submarine cable ecosystem as a whole, which is necessary to serve the government's missions described herein.<sup>93</sup> Targeted outage reporting will: (1) speed up the process of identifying the cause and scope of outages; (2) enable the Commission and its government partners to maintain situational awareness of outages and respond to them as needed; and (3) equip the Commission to promptly alert and coordinate response with national defense and other authorities, as necessary.<sup>94</sup> These benefits may help reduce the extent of the damage or mitigate its effects on end users in support of maintaining national security. In addition to providing insight into specific incidents, this information will further enable the Commission to perform long term outage trend analysis, and help facilitate the Commission's interagency coordination processes in support of the ongoing resilience of the submarine cable ecosystem, which is vital to the national security and economic strength of the country.<sup>95</sup> For all of these reasons, we conclude that the benefits of the targeted outage reporting requirement, as modified by this Order on Reconsideration, are significant and can reasonably be expected to exceed their cost.

## V. PROCEDURAL MATTERS

37. *Regulatory Flexibility Act.* Pursuant to the Regulatory Flexibility Act of 1980, as amended,<sup>96</sup> the Commission has prepared a Supplemental Final Regulatory Flexibility Analysis ("Supplemental FRFA") of the possible significant economic impact on small entities of the policies and rules adopted in this Order on Reconsideration. The Supplemental FRFA is attached as Appendix B.

38. *Paperwork Reduction Act Analysis.* This document contains modified information collection requirements. The Commission, as part of its continuing effort to reduce paperwork burdens, invites the public to comment on the information collection requirements contained in this Order on Reconsideration as required by the Paperwork Reduction Act of 1995, Public Law 104-13. In addition, the Commission notes that pursuant to the Small Business Paperwork Relief Act of 2002, Public Law

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<sup>92</sup> See *New Part 4 of the Commission's Rules Concerning Disruptions to Communications*, Report and Order and Further Notice of Proposed Rulemaking, 19 FCC Rcd 16830, para. 1 (2004) (2004 Part 4 Order). Although current Part 4 was established in 2004, the roots of outage reporting go back to the early 1990s under what was then Part 63. See *Amendment of Part 63 of the Commission's Rules to Provide for Notification by Common Carriers of Service Disruptions*, Report and Order, 7 FCC Rcd 2010 (1992).

<sup>93</sup> For example, although some operators may provide information to DHS in certain circumstances, that reporting does not replicate the scope of the data that would be generated by our reporting requirements. Furthermore, individual cable operators generally have visibility only into their own cables, and indeed some of them may have limited visibility, as in the cases of consortiums or joint build systems. See *NASCA Ex Parte* at 2 (explaining ownership models and respective restoration methods).

<sup>94</sup> See Exec. Order No. 10530, 19 Fed. Reg. 2709 (May 10, 1954); Exec. Order No. 13618, 77 Fed. Reg. 40,779 (July 6, 2012).

<sup>95</sup> In the *NPRM*, the Commission directed the International Bureau and Public Safety and Homeland Security Bureau to "reach out to relevant government agencies, under its existing delegated authority," to "develop and improve interagency coordination processes and best practices vis-à-vis submarine cable deployment activities and related permits and authorizations to increase transparency and information sharing among the government agencies, cable licensees, and other stakeholders." See *Submarine Cable Outage Reporting NPRM*, 30 FCC Rcd at 10509, para. 47. As the Commission noted in the *Order*, the Bureaus have met with other federal agencies and are continuing efforts to "promote improved interagency coordination processes to mitigate threats to undersea cables and facilitate new projects to improve geographic diversity." *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7976, para. 80.

<sup>96</sup> See 5 U.S.C. § 604.

107-198, *see* 44 U.S.C. 3506(c)(4), the Commission previously sought specific comment on how the Commission might further reduce the information collection burden for small business concerns with fewer than 25 employees.

39. In this present document, we have assessed the effects of the modifications of the rules herein, which require submarine cable licensees to report when they experience outages of certain durations and causes, on small business concerns and find that the rules modified here reduce the information collection burden on such entities.

40. *Congressional Review Act.* The Commission will send a copy of this Order on Reconsideration to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. 801(a)(1)(A).

## VI. ORDERING CLAUSES

41. Accordingly, IT IS ORDERED pursuant to sections 1, 4(i), 4(j), 4(o), and 405 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i)-(j) & (o), 405, and the Cable Landing License Act of 1921, 47 U.S.C. §§ 34-39, and 3 U.S.C. § 301, that this Order on Reconsideration IS ADOPTED.

42. IT IS FURTHER ORDERED that part 4 of the Commission's rules, 47 CFR part 4, IS AMENDED as set forth in Appendix A, and that such rule amendments WILL BECOME EFFECTIVE 30 days after publication of a summary of this Order on Reconsideration in the Federal Register. Section 4.15 contains new or modified information-collection requirements that require review by the OMB under the PRA. For reasons discussed above, compliance with such rule amendments and with other changes to the Commission's rules announced in the *Submarine Cable Outage Reporting Order*, FCC 16-81, 81 FR 52354, will not be required until six months after the Commission publishes a notice in the Federal Register announcing OMB approval. The Commission directs the Public Safety and Homeland Security Bureau to announce the compliance date for those information collections in a document published in the Federal Register after OMB approval and to cause section 4.15 to be revised accordingly. IT IS FURTHER ORDERED that the Commission SHALL SEND a copy of this Order on Reconsideration to Congress and the Government Accountability Office pursuant to the Congressional Review Act, *see* 5 U.S.C. § 801(a)(1)(A).

43. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of this Order on Reconsideration, including the Supplemental Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

44. IT IS FURTHER ORDERED that, for reasons discussed herein, pursuant to section 1.429(d) of the Commission's rules, the motion for leave to supplement its petition for reconsideration submitted by the North American Submarine Cable Association on September 1, 2017 is GRANTED.

45. IT IS FURTHER ORDERED that, pursuant to section 1.429 of the Commission's rules, 47 CFR § 1.429, the Petition for Reconsideration filed by North American Submarine Cable Association on September 8, 2016 is GRANTED IN PART and DENIED IN PART to the extent described herein.



46. IT IS FURTHER ORDERED that, pursuant to section 1.429 of the Commission's rules, 47 CFR § 1.429 the Petition for Reconsideration filed by Submarine Cable Coalition on August 11, 2016, is GRANTED IN PART AND DENIED IN PART to the extent described herein.

FEDERAL COMMUNICATIONS COMMISSION

Marlene H. Dortch  
Secretary

## APPENDIX A

### Final Rules

For the reasons discussed in the Order on Reconsideration, the Federal Communications Commission amends 47 CFR part 4 as set forth below:

#### PART 4 – DISRUPTIONS TO COMMUNICATIONS

1. Section 4.1 is amended by removing the Effective Date Note.
2. Section 4.15 is amended by revising paragraphs (a) and (b), and adding paragraph (d) to read as follows:

§ 4.15 - Submarine cable outage reporting.

(a) Definitions.

(1) For purposes of this section, “outage” is defined as a failure or significant degradation in the performance of a licensee’s cable service regardless of whether the traffic can be re-routed to an alternate path, where:

- (i) an outage of a portion of submarine cable system between submarine line terminal equipment (SLTE) at one end of the system and SLTE at another end of the system occurs for 30 minutes or more; or
- (ii) an outage of any fiber pair, including due to terminal equipment, on a cable segment occurs for four hours or more, regardless of the number of fiber pairs that comprise the total capacity of the cable segment.

(2) An “outage” does not require reporting under this section if the outage is caused by announced planned maintenance and the licensee notified its customers in advance of the planned maintenance and its expected duration, except that if the planned maintenance duration surpasses the shortest announced duration for the planned maintenance and this additional time triggers the requirements in Section 4.15(a)(1), the outage becomes reportable as of the time the maintenance exceeds the shortest announced duration for the planned maintenance.

(b) Outage reporting.

(1) For each outage that requires reporting under this section, the licensee (or Responsible Licensee as designated by a Consortium) shall provide the Commission with a Notification, Interim Report, and a Final Outage Report.

- (i) For a submarine cable that is jointly owned and operated by multiple licensees, the licensees of that cable may designate a Responsible Licensee that files outage reports under this rule on behalf of all licensees on the affected cable.
- (ii) Licensees opting to designate a Responsible Licensee must jointly notify the Chief of the Public Safety and Homeland Security Bureau's Cybersecurity and Communications Reliability Division of this decision in writing. Such Notification shall include the name of the submarine cable at issue; and contact information for all licensees on the submarine cable at issue, including the Responsible Licensee.

(2) Notification, Interim, and Final Outage Reports shall be submitted by a person authorized by the licensee to submit such reports to the Commission.

(i) The person submitting the Final Outage Report to the Commission shall also be authorized by the licensee to legally bind the provider to the truth, completeness, and accuracy of the information contained in the report. Each Final report shall be attested by the person submitting the report that he/she has read the report prior to submitting it and on oath deposes and states that the information contained therein is true, correct, and accurate to the best of his/her knowledge and belief and that the licensee on oath deposes and states that this information is true, complete, and accurate.

(ii) The Notification is due within 480 minutes (8 hours) of the time of determining that an event is reportable for the first three years from the effective date of these rules. After three years from the effective date of the rules, Notifications shall be due within 240 minutes (4 hours). The Notification shall be submitted in good faith. Licensees shall provide: The name of the reporting entity; the name of the cable and a list of all licensees for that cable; the date and time of onset of the outage, if known (for planned events as defined in 4.15(a)(2), this is the estimated start time/date of the repair); a brief description of the event, including root cause if known; nearest cable landing station; best estimate of approximate location of the event, if known (expressed in either nautical miles and the direction from the nearest cable landing station or in latitude and longitude coordinates); best estimate of the duration of the event, if known; whether the event is related to planned maintenance; and a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity.

(iii) The Interim Report is due within 24 hours of receiving the Plan of Work. The Interim Report shall be submitted in good faith. Licensees shall provide: The name of the reporting entity; the name of the cable; a brief description of the event, including root cause, if known; the date and time of onset of the outage; nearest cable landing station; approximate location of the event (expressed in either nautical miles and the direction from the nearest cable landing station or in latitude and longitude); best estimate of when the cable is scheduled to be repaired, including approximate arrival time and date of the repair ship, if applicable; a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity.

(iv) The Final Outage Report is due seven (7) days after the repair is completed. The Final Outage Report shall be submitted in good faith. Licensees shall provide: The name of the reporting entity; the name of the cable; the date and time of onset of the outage (for planned events as defined in 4.15(a)(2), this is the start date and time of the repair); a brief description of the event, including the root cause if known; nearest cable landing station; approximate location of the event (expressed either in nautical miles and the direction from the nearest cable landing station or in latitude and longitude coordinates); duration of the event, as defined in paragraph (a) of this section; the restoration method; and a contact name, contact email address, and contact telephone number by which the Commission's technical staff may contact the reporting entity. If any required information is unknown at the time of submission of the Final Report but later becomes known, licensees should amend their report to reflect this knowledge. The Final Report must also contain an attestation as described in paragraph (b)(2)(i) of this section.

(v) The Notification, Interim Report, and Final Outage Reports are to be submitted electronically to the Commission. “Submitted electronically” refers to submission of the information using Commission-approved Web-based outage report templates. If there are technical impediments to using the Web-based system during the Notification stage, then a written Notification to the Commission by email to the Chief, Public Safety and Homeland Security Bureau is permitted; such Notification shall contain the information required. Electronic filing shall be effectuated in accordance with procedures that are specified by the Commission by public notice. Notifications, Interim reports, and Final Reports may be withdrawn under legitimate circumstances, e.g., when the filing was made under the mistaken assumption that an outage was required to be reported.

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d) *Compliance date.* This section contains new or modified information-collection and recordkeeping requirements. Compliance with these information-collection and recordkeeping requirements will not be required until six months after the Commission publishes a notice in the Federal Register announcing approval by the Office of Management and Budget and the compliance date. Following such approval, the Commission will publish a document in the Federal Register announcing that compliance date and removing or revising this paragraph.

## APPENDIX B

## Supplemental Final Regulatory Flexibility Analysis

1. As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>1</sup> an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Submarine Cable Notice of Proposed Rulemaking* (Submarine Cable NPRM) adopted in September of 2015.<sup>2</sup> The Commission sought written public comment on the proposals in *Submarine Cable NPRM* including comments on the IRFA. The Commission included a Final Regulatory Flexibility Analysis (FRFA) in Appendix C of the *Submarine Cable Outage Reporting Order* in this proceeding.<sup>3</sup> This Supplemental Final Regulatory Flexibility Analysis (Supplemental FRFA) supplements the FRFA in the *Submarine Cable Outage Reporting Order* to reflect the actions taken in the Order on Reconsideration and conforms to the RFA.<sup>4</sup>

**A. Need for, and Objectives of, the Order on Reconsideration**

2. In the Order on Reconsideration the Commission reexamined the required reporting of submarine cable infrastructure outages and addressed the issues raised by parties in their petitions for reconsideration<sup>5</sup> of the *Submarine Cable Outage Reporting Order* adopting mandatory reporting requirements for submarine cable licensees.<sup>6</sup> After considering the petitions, the Commission granted the request to exempt reporting of outages due to planned maintenance on the condition that submarine cable operators continue to provide customers with advance notification of the outage (including the duration) and any additional time beyond the announced duration of the outage does not exceed the amount of time that would otherwise trigger the outage reporting requirements. The Commission also granted the request to amend the rules to eliminate the inconsistency between the rule defining a submarine cable “outage” and the Order’s characterization of that definition. However, the Commission denied the requests to raise the minimum duration for an outage, to extend the time to file a Notification, to eliminate reporting of outages when all traffic on a submarine cable is rerouted, and to extend the timeframe to begin compliance with the new rules.

3. The Order on Reconsideration preserved the underlying value of reporting outages to aid in the analysis of network reliability trends and issues, situational awareness and incident response, and national security efforts while it narrowed associated reporting costs and administrative burdens.

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<sup>1</sup> 5 U.S.C. § 603. The RFA, 5 U.S.C. §§ 601-612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Public L. No. 104-121, Title II, 110 Stat. 857 (1996).

<sup>2</sup> *Improving Outage Reporting for Submarine Cables and Enhancing Submarine Cable Outage Data*, GN Docket 15-206, Notice of Proposed Rulemaking, 30 FCC Rcd 10492, 10516-21, Appx. B, Initial Regulatory Flexibility Analysis (2015) (*Submarine Cable Outage Reporting NPRM*).

<sup>3</sup> *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket 15-206, Report and Order, 31 FCC Rcd 7947, 7988-94, Appx. C, Final Regulatory Flexibility Analysis (2016) (*Submarine Cable Outage Reporting Order* or *Order*).

<sup>4</sup> See 5 U.S.C. § 604.

<sup>5</sup> See Petition of the North American Submarine Cable Association for Reconsideration of *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order (rec. September 8, 2016) (NASCA Petition); Petition of Submarine Cable Coalition for Reconsideration of *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order (rec. August 11, 2016) (SCC Petition); Supplement to Petition of the North American Submarine Cable Association for Reconsideration of *Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data*, GN Docket No. 15-206, Report and Order (rec. September 1, 2017) (NASCA Supplement).

<sup>6</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7983.

**B. Summary of Significant Issues Raised by Public Comments in Response to the IRFA**

4. There were no comments filed that specifically addressed the proposed rules and policies presented in the IRFA.

**C. Response to Comments by the Chief Counsel for Advocacy of the Small Business Administration**

5. Pursuant to the Small Business Jobs Act of 2010, which amended the RFA, the Commission is required to respond to any comments filed by the Chief Counsel for Advocacy of the Small Business Administration (SBA), and to provide a detailed statement of any change made to the proposed rules as a result of those comments.<sup>7</sup>

6. The Chief Counsel did not file any comments in response to the proposed rules in this proceeding.

**D. Description and Estimate of the Number of Small Entities to Which the Rules Will Apply**

7. The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the rules adopted herein.<sup>8</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>9</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>10</sup> A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the SBA.<sup>11</sup>

8. As noted above, the FRFA was incorporated into the *Submarine Cable Outage Reporting Order*. In that analysis, we described in detail the small entities that might be significantly affected by the rules adopted in the proceeding. In this Supplemental FRFA we hereby incorporate by reference from the FRFA in the *Submarine Cable Outage Reporting Order*, the descriptions and estimates of the number of small entities that might be significantly affected by the rules modified and/or adopted herein.<sup>12</sup>

**E. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities**

9. The actions taken in the Order on Reconsideration amended rules in the *Submarine Cable Outage Reporting Order* and modified the recordkeeping, reporting or other compliance obligations on small entities as described below, and reduced their costs.

10. To reduce confusion and the possibility that unnecessary outage reports will be filed, we clarified that the definition of an outage that affects a fiber pair occurs when there is a “failure or significant degradation,” rather than merely a “loss.” This modification eliminates the inconsistency

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<sup>7</sup> 5 U.S.C. § 604 (a)(3).

<sup>8</sup> 5 U.S.C. § 604(a)(3).

<sup>9</sup> 5 U.S.C. § 601(6).

<sup>10</sup> 5 U.S.C. § 601(3) (incorporating by reference the definition of “small-business concern” in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.”

<sup>11</sup> 15 U.S.C. § 632.

<sup>12</sup> *Submarine Cable Outage Reporting Order*, 31 FCC Rcd at 7988-93, Appx. C, paras. 6-23.



between the rule defining submarine cable “outage” in Section 4.15(a)(1) of the Final Rules attached to the *Submarine Cable Outage Reporting Order*, and the *Submarine Cable Outage Reporting Order*’s characterization of that definition.

11. We reduced the reportable outages by exempting outages due to planned maintenance from the reporting requirement on the condition that the licensee has provided its customers with advance notification of the outage (including the duration). Reporting to the Commission is required if the cable operator planning the maintenance outage does not provide advance notification of the outage to its customers, or if the announced planned maintenance event turns into an unplanned outage in which the duration of the unplanned portion is sufficient in and of itself to trigger the outage reporting threshold.

12. In the *Submarine Cable Outage Reporting Order*, we required an outage Notification notwithstanding whether the traffic was rerouted. Accordingly, to provide flexibility to licensees, when the outage is a planned maintenance outage as described above, the outage need not be reported to the Commission. Conversely, if the outage is unplanned or is planned but the customer is not notified in advanced of the event, the licensee must file a Notification. Additionally, if a licensee determines that a Notification, an Interim Report, or a Final Report filed for an outage is no longer required because the event no longer meets the outage definition in 47 CFR § 4.15(a), the licensee may withdraw the filing.

**F. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered**

13. The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): “(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) and exemption from coverage of the rule, or any part thereof, for small entities.”<sup>13</sup>

14. The Commission took steps that will minimize the economic impact on small entities and other licensees by reducing certain requirements and adding additional discretion to other requirements. In general, the reporting rules as modified by the Order on Reconsideration will generate fewer reports than the number of reports estimated in the *Submarine Cable Outage Reporting Order*, which will lower costs for small entities and other licensees who experience an outage that triggers reporting. Specifically, and as discussed in the previous section, we have limited certain reporting obligations for outages involving planned maintenance. This alternative is a change from the existing rule in the *Submarine Cable Outage Reporting Order*, which included a reporting obligation for all outages involving planned maintenance.

15. In light of these modified reporting requirements, small entities and other licensees are able to negotiate with their partners and plan for planned maintenance notifications ahead of any outages which may limit outage reporting associated costs.

16. The Order on Reconsideration significantly reduced the scope of required reporting, but the Commission does not have specific data on the magnitude of the reduction in reporting that would result from the changes announced today. As a general matter we expect that these changes will generate fewer reports than the number of reports indicated by the *Submarine Cable Outage Reporting Order*, which will lower reporting costs for small entities and other licensees without significantly reducing the benefits. In addition, because these changes limit reporting to outages for which licensees must generally take action to restore service, we anticipate that the information required to be reported will likely be information that licensees routinely either have or must obtain to restore service. We note that many of

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<sup>13</sup> 5 U.S.C. § 603(c)(1)-(4).

the reporting requirements, as modified herein, only require reporting of information “if known.” We therefore anticipate that the reporting requirements, as modified herein, are unlikely to result in substantial additional information gathering costs to licensees. We also consider that some licensees may incur one-time costs associated with the modified outage reporting obligations, but we anticipate that any such costs are mitigated in part by the fact that, due to consortium agreements associated with submarine cables, not all licensees will incur the full scope of review costs.

17. The Commission believes in this instance that applying the same rules equally to all entities is necessary to ensure consistent outage reporting covering all licensed cables in order to provide the Commission with a holistic picture of the resilience of the submarine cable ecosystem, which will enable outage trend analysis over the longer term. Mandatory, targeted outage reporting will (1) speed up the process of identifying the cause and scope of such outages; (2) enable the Commission and its government partners to maintain situational awareness of outages and respond to them as needed; and (3) equip the Commission to promptly alert and coordinate response with national defense and other authorities, as necessary. Among other benefits, this may help reduce the extent of the damage from outages or mitigate its effects on end users in support of maintaining national security. Further, outage reporting and the subsequent trend analysis from the information collected will assist the Commission as it works towards mitigating threats to undersea cables through trend analysis, which will help facilitate the agency’s interagency coordination processes related to submarine cable deployment.

#### **Report to Congress**

18. The Commission will send a copy of the Order on Reconsideration, including this Supplemental FRFA, in a report to Congress pursuant to the Congressional Review Act.<sup>14</sup> In addition, the Commission will send a copy of the Order on Reconsideration, including this Supplemental FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Order on Reconsideration and Supplemental FRFA (or summaries thereof) will also be published in the *Federal Register*.<sup>15</sup>

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<sup>14</sup> See 5 U.S.C. § 801(a)(1)(A).

<sup>15</sup> See 5 U.S.C. § 604(b).

**STATEMENT OF  
COMMISSIONER MICHAEL O'RIELLY  
APPROVING IN PART, CONCURRING IN PART**

***Re: Improving Outage Reporting for Submarine Cables and Enhanced Submarine Cable Outage Data, GN Docket No. 15-206.***

Since joining the Commission, I have advocated for eliminating any unnecessary burdens on regulatees and minimizing the scope and costs of any new regulations being proposed. I am, therefore, supportive of the portion of today's item that reduces burdens by exempting planned submarine cable maintenance, when customers have been notified, from our reporting requirement. I respectfully, however, must concur from the remainder, because, as I said when we first adopted this reporting requirement, there remains a lack of justification for many of these burdens. I am giving these decisions the benefit of the doubt, rather than dissenting in part, because this once rather sleepy service has transitioned into a fairly dynamic sector, experiencing significant change with all of the data traffic traversing the globe. As such, there are slices here that could prove to be helpful, including having a better record of when outages occur.

At the same time, I have serious concerns about much of the information we mandate, the timeframes required, and the multitude of reports that need to be filed. For example, I think the requirement we adopt today that planned outages must still be reported if service is down for longer than announced may lead to the unintended consequence of operators greatly overestimating their maintenance time in order to ensure that they do not have to report. The interim report also continues to be very questionable, because operators do not usually have further information regarding why there was a cable outage at that time and such information can be included in a final report. This is also being considered in the Commission's Part 4 proceeding, so hopefully we will address this requirement there. Moreover, there is not an automated process for reporting outages, so the timelines for initial reporting should have reflected this, especially since it is time consuming to get the data mandated by the Commission. Ultimately, the Commission ignores a real concern that these reporting requirements will detract from the ability to restore service, which it seems should be the main objective.

Additionally, commenters specifically sought reconsideration of these rules based on an analysis that truly reflects the costs and benefits of this outage reporting requirement. Instead of receiving the fulsome cost-benefit analysis and reconsideration of the entirety of the reporting requirement imposed, all that's included is a summary statement that the elimination of the planned maintenance reports will result in fewer reports and costs than originally contemplated. This is not a real or sufficient review of its cost-benefit analysis. When initially adopted, both I and then-Commissioner Pai called the analysis highly flawed and incomplete. Not to sound like a broken record, but we should expect more from this process.

Finally, it is not unreasonable to expect that another priority should be ensuring that there are redundant submarine cables. The Commission should be facilitating deployment, so that, if a submarine cable is cut, there will be other cables in geographically diverse areas to carry the traffic. In fact, submarine cable owners have been trying to do just that, but they are faced with permitting and licensing delays. One hurdle to deployment has been an opaque and timeless Team Telecom process, which is still within the realm to improve. All Commission licensees need certainty that, when they file applications, they will get prompt answers, and the current Team Telecom process certainly is open for necessary improvement.